

SEQUENCE LISTING

B9
<110> Vivien W. Wong, et al.

<120> MODIFIED CILIARY NEUROTROPHIC FACTOR, METHOD OF
MAKING AND METHODS OF USE THEREOF

<130> REG 142-C

<140> 09/577,468
<141> 2000-05-24

<150> 09/454,380
<151> 1999-12-03

<150> 09/373,834
<151> 1999-08-13

<160> 23

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 200
<212> PRT
<213> Homo sapiens

<400> 1
Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

<210> 2
<211> 200
<212> PRT
<213> Rattus norvegicus

89
cont.
<400> 2

Met Ala Phe Ala Glu Gln Thr Pro Leu Thr Leu His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val
115 120 125
Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala
130 135 140
Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Val Ile Ser Ser His Gln Met Gly Ile Ser Ala Leu Glu Ser His
180 185 190
Tyr Gly Ala Lys Asp Lys Gln Met
195 200

<210> 3

<211> 199

<212> PRT

<213> Oryctolagus cuniculus

<400> 3

Met Ala Phe Met Glu His Ser Ala Leu Thr Pro His Arg Arg Glu Leu
1 5 10 15
Cys Ser Arg Thr Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Val Pro Met Ala Ser Thr Asp Gln Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Ile Met Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Ala Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Val
115 120 125
Leu Leu Glu Cys Asn Ile Pro Pro Lys Asp Ala Asp Gly Thr Pro Val
130 135 140
Ile Gly Gly Asp Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys Val
145 150 155 160
Leu Gln Glu Leu Ser His Trp Thr Val Arg Ser Ile His Asp Leu Arg
165 170 175
Val Ile Ser Cys His Gln Thr Gly Ile Pro Ala His Gly Ser His Tyr
180 185 190
Ile Ala Asn Asp Lys Glu Met
195

BB
cont.
<210> 4
<211> 198
<212> PRT
<213> Mus musculus

<400> 4
Met Ala Phe Ala Glu Gln Ser Pro Leu Thr Leu His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Ser Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Thr Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Ala
115 120 125
Leu Leu Glu Gln Lys Val Pro Glu Lys Glu Ala Asp Gly Met Pro Val
130 135 140
Thr Ile Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Val Ile Ser Ser His His Met Gly Ile Ser Ala His Glu Ser His
180 185 190
Tyr Gly Ala Lys Gln Met
195

<210> 5
<211> 195
<212> PRT
<213> Gallus gallus

<400> 5
Met Ala Ala Ala Asp Thr Pro Ser Ala Thr Leu Arg His His Asp Leu
1 5 10 15
Cys Ser Arg Gly Ile Arg Leu Ala Arg Lys Met Arg Ser Asp Val Thr
20 25 30
Asp Leu Leu Asp Ile Tyr Val Glu Arg Gln Gly Leu Asp Ala Ser Ile
35 40 45
Ser Val Ala Ala Val Asp Gly Val Pro Thr Ala Ala Val Glu Arg Trp
50 55 60
Ala Glu Gln Thr Gly Thr Gln Arg Leu Leu Asp Asn Leu Ala Ala Tyr
65 70 75 80
Arg Ala Phe Arg Thr Leu Leu Ala Gln Met Leu Glu Glu Gln Arg Glu
85 90 95
Leu Leu Gly Asp Thr Asp Ala Glu Leu Gly Pro Ala Leu Ala Ala Met
100 105 110
Leu Leu Gln Val Ser Ala Phe Val Tyr His Leu Glu Glu Leu Leu Glu
115 120 125
Leu Glu Ser Arg Gly Ala Pro Ala Glu Glu Gly Ser Glu Pro Pro Ala
130 135 140
Pro Pro Arg Leu Ser Leu Phe Glu Gln Lys Leu Arg Gly Leu Arg Val
145 150 155 160
Leu Arg Glu Leu Ala Gln Trp Ala Val Arg Ser Val Arg Asp Leu Arg
165 170 175

Gln Leu Ser Lys His Gly Pro Gly Ser Gly Ala Ala Leu Gly Leu Pro
180 185 190
Glu Ser Gln
195

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<210> 6
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified CNTF

<400> 6
Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val
115 120 125
Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala
130 135 140
Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Val Ile Ser Ser His Gln Met Gly Ile Ser Ala Leu Glu Ser His
180 185 190
Tyr Gly Ala Lys Asp Lys Gln Met
195 200

<210> 7
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified CNTF

<400> 7
Met Ala Phe Ala Glu Gln Thr Pro Leu Thr Leu His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val

85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

<210> 8

<211> 200

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified CNTF

<400> 8

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Val Ile Ser Ser His Gln Met Gly Ile Ser Ala Leu Glu Ser His
180 185 190
Tyr Glu Ala Lys Asp Lys Gln Met
195 200

<210> 9

<211> 200

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified CNTF

<400> 9

Met Ala Phe Ala Glu Gln Thr Pro Leu Thr Leu His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val
115 120 125
Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala
130 135 140
Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

<210> 10

<211> 200

<212> PRT

<213> Artificial Sequence

<220>

<223> Modified CNTF

<400> 10

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val
115 120 125
Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala
130 135 140
Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met

195

200

<210> 11
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified CNTF

<400> 11

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

<210> 12
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified CNTF

<400> 12

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110

Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

BB
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<210> 13
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified CNTF

<400> 13

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Val Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
50 55 60
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

<210> 14
<211> 200
<212> PRT
<213> Artificial Sequence

<220>
<223> Modified CNTF

<400> 14

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr

20	25	30	
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile			
35	40	45	
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Gln Trp			
50	55	60	
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr			
65	70	75	80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val			
85	90	95	
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu			
100	105	110	
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile			
115	120	125	
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile			
130	135	140	
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys			
145	150	155	160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu			
165	170	175	
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His			
180	185	190	
Tyr Ile Ala Asn Asn Lys Lys Met			
195	200		

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<210> 15
<211> 200
<212> PRT
<213> Artificial Sequence
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<220>
<223> Modified CNTF

<400> 15

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Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
180 185 190
Tyr Ile Ala Asn Asn Lys Lys Met
195 200

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<210> 16

<211> 184

<212> PRT

<213> Artificial Sequence

<220>

<223> Ax-15 protein

<400> 16

Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu Ala
1 5 10 15
Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr Ala
20 25 30
Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile Asn
35 40 45
Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Arg Trp Ser
50 55 60
Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr Arg
65 70 75 80
Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val His
85 90 95
Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu Leu
100 105 110
Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile Leu
115 120 125
Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile Asn
130 135 140
Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys Val
145 150 155 160
Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu Arg
165 170 175
Phe Ile Ser Ser His Gln Thr Gly
180

<210> 17

<211> 185

<212> PRT

<213> Artificial Sequence

<220>

<223> Methionine+ Ax-15 protein

<400> 17

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
1 5 10 15
Ala Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Arg Trp
50 55 60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
85 90 95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
115 120 125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
130 135 140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys

145 150 155 160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175
Arg Phe Ile Ser Ser His Gln Thr Gly
180 185

<210> 18
<211> 21
<212> DNA
<213> Artificial Sequence

89
cont

<220>
<223> Primer

<400> 18
acggtaagct tggaggttct c 21

<210> 19
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 19
tctatctggc tagcaaggaa gattcggttca gaccgtactg ctcttacg 48

<210> 20
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 20
aaggtagat aagcttggag gttctttgg agtcgctctg cctcagtcag ctcactccaa 60
cgatcagtg 69

<210> 21
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 21
tctatctggc tagcaaggaa g 21

<210> 22
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer

<400> 22
ccagatagag gagttaatga tactcct 27

<210> 23
<211> 47
<212> DNA
<213> Artificial Sequence

(B9)
cont /
<220>
<223> Primer

<400> 23
gcgtcgcccg cggaccacgc tcattaccca gtctgtgaga agaaaatg

47